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ABSTRACT

Classical commitment studies are either sociologically oriented or based in the psychological empirical research tradition. A review of the literature reveals agreement on the multidimensionality and the contextual complexity of commitment, two principles which guide the hypotheses of the present study. This study uses the Administrator and Teacher Survey (ATS) data from the High School and Beyond (HSB) project. These data permit measurement of teaching commitment in two dimensions: extra involvement in subject preparation and/or student activities; and strong identification with school staff educational goals, academic excellence, student personal growth and development, or with all three. Findings indicate that, despite its disadvantages, the ATS allows measures of commitment that may have some advantages over those found in either of the classiscal commitment research traditions. The present study allows for measurement of involvement and identification dimensions; it measures commitment as multidimensional; it allows the definition of commitment in a specific and appropriate social context; and it allows for possible conflicting underlying dimensions of commitment. The findings suggest that high schools present different social contexts and, therefore, policies on teaching commitment need to be approached on a local level. (AMH)

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Analyzing teaching commitment: Theoretical and empirical dimensions

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Introduction

Given a rising concern in the United States over teachers' attraction to and retention in teaching, educational writers have begun to write about the commitment of teachers to their work (e.g., Rosenholtz, 1987, 1989; Rowan, 1990). There is also worry about the extent of and quality of secondary school teachers' commitment to teaching (e.g., Sizer, 1984; Powell, et.al., 1985; Cusick, 1983). These studies imply that commitment is a commonly-understood and uni-dimensional phenomenon. Yet, commitment is probably neither. A substantial literature, largely untapped in educational research, suggests that commitment is multi-dimensional and context-dependent. Misunderstanding the nature of commitment may lead and may have already led to misdirected educational policies. In order to minimize costly mistakes and unintended consequences, attempts to enhance teaching commitment need to understand the likely multi-dimensionality and context-dependence of teaching commitment.

In this paper, I will find common features in a diverse literature on commitment, especially those parts of the literature most applicable to the teaching of high school. I will then present a hypothetical conception of high school teaching commitment based on previous literature and analyze that conception empirically, using the 1984 High School and Beyond Administrator and Teacher Survey data.

Diverse conceptions of commitment

There is already considerable and theoretical and empirical work on commitment as a general phenomenon (e.g., Becker, 1960; Alutto, et.al., 1973; Kanter, 1974), an organizational phenomenon (e.g., Porter, et.al., 1974; Etzioni, 1961,1975; Steers, 1977; Mowday, et. al., 1982)

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and occupational phenomenon (e.g., Sheldon, 1971; Becker, et.al., 1979). However, within the commitment literature, there are overlapping definitions of commitment and a lack of attention to secondary teachers as a group. These two facts make any simple application of commitment literature to secondary school teaching difficult. Consequently, commitment to high school teaching remains unanalyzed or inadequately analyzed.

There are two main schools of thought regarding the nature of and causes of commitment. The first is sociologically-oriented and includes two perspectives: side-bet theory and multiple-state organizational/commitment typologies. These focus on how different socially-organized endeavors and dimensions of those endeavors organize and contribute to individual commitment. The second perspective arises from psychological empirical research. It concerns itself with building reliable scales of individual commitment based on individual behavioral and attitudinal dimensions. While these perspectives share common threads, their distinctiveness deserves explanation.

Sociological side bet theory: commitment as cumulative irreversible investments . Side-bet theory (e.g., Becker, 1960) argues that commitment is a process whereby individuals invest in, or place bets from, their personal resources in maintaining an endeavor (i.e., a job, an occupation). As persons bet more personal resources not formally required by the endeavor in occupationally or organizationally-related work, they demonstrate commitment. In short, the more dimensions of their lives become tied to an endeavor, the more committed persons become. Also, side-bets accumulate, making withdrawal from a commitment difficult.

Side-bet theory generally defines commitment in three ways: as demonstrable behaviors; as devotion of personal resources toward an occupation; and as cumulative and difficult to reverse investments. Partly because of the difficulty of distinguishing side-bets from main bets and the difficulty of finding reliable measures of "irreversible investments," operational definitions are lacking. This state of affairs makes findings in side-bets research less generalizable and predictable than commitment research that uses commitment scales. Typical organizational commitment

indicators of personal side bets on one's organization include age, second jobs, years in the organization (Snizek and Little, 1984). Sheldon (1971) measured professionals' occupational commitment similarly.

Side-bet theory makes two important contributions. First, it explains how socially-organized activities and dimensions of individual's lives might become linked. Second, related to the first contribution, side-bet theory suggests that patterns of behavior may create their *raison d'etre*: existing commitments lead to more commitments.

Sociological multiple-state organizational commitment theories .

Organization/commitment typologies constitute a second sort of commitment theory, one that describes multiple dimensions of complex organizations to which individuals may become committed. Both Etzioni (1961, 1975) and Kanter (1974) distinguish between the quality of commitments different types of organizations demand or elicit. For example, from her study of "total" organizations (utopian secular and religious communities, prisons), Kanter generalized that individuals might be committed to one or more of three things:

1) the ideology and norms of the organization (social-control),
2) the social solidarity with organizational members (social cohesion); or
3) the protection of personal and social investments individuals have made in the organization (continuance).

Concerned mainly with types of organizations, Etzioni (1961, 1975) argues that employees' organizational attachment may may be described along two dimensions: calculative or moral. Etzioni's moral commitment resembles a combination of Kanter's social-control and social cohesion dimensions, i.e., formal adherence to group norms or sensitivity to group pressures. His "calculative" commitment, similar to both Becker's' irreversible investments and Kanter's

continuance commitments; it describes an individual's summing of costs and benefits associated with organizational membership.

There have been few attempts to operationalize organization/typology commitment theories in quantitative research. British qualitative researchers (Nias, 1981, Woods, 1983) use Kanter's typology to find secondary teachers more likely than elementary school teachers to evidence calculative than moral commitments. This finding is consistent with an untested Etzioni claim though he argued that teachers commitments were some combination of moral and calculative dimensions.

Side-bet and typology theories share common features. First, both typologies contain normative, social cohesion and cost-benefit dimensions. In one sense, side-bet theory is a sub-set of typology theories, i.e., the cost-benefits dimension. A second shared feature of sociological commitment theories is that they link individuals and socially-organized contexts. That is, individuals seem to find or fail or find matches between their attitudes, desired activities and those available in the social context of an endeavor. However, side-bet and typology theories focus on different aspects of the social context. Side-bet theory stresses the multi-dimensionality of individual life choices in social endeavors and typology theory stresses the multi-dimensionality of commitment structures in social organizations. Together, they suggest that a definition of commitment should include some cluster of behaviors and attitudes that reflect individual initiative and organizationally-structured opportunities.

Multiple attitude dimension single scale research . Instead of defining commitment as a socially-constructed phenomenon, the third approach defines commitment as a cluster of individual attitudinal and behavioral dimensions. It combines three likely dimensions-strong willingness to remain in the organization or occupation, a strong belief in organization's or occupation's goals and strong desires to maintain membership in the organization or occupation-into a single reliable scale (Porter, et. al., 1974; Steers, 1977; Mowday, et.al., 1979; Mowday, et. al., 1982; Buchanan, 1974). Involvement questions typically ask respondents to describe their

level of involvement in tasks central to the organization or occupation. Identification questions ask respondents to estimate their amount of agreement with the goals of the organization or occupation. Willingness-to-remain questions query the extent to which individuals are likely to remain in the organization or occupation. Commitment scales modeled after Porter, et.al. are easy to replicate; this may account for their wide use in a variety of organizational and occupational studies.

There may be some overlap of dimensions across sociological and psychological theories. Like sociological theories, commitment scale research suggests that commitment is multi-dimensional. The notion of identification, involvement and willingness to remain thread through sociological theory and scale research. Identification with goals resembles typology theories' dimension of normative or ideological commitment. Involvement and willingness to remain are reflected in side-bet theories' irreversible investments, Kanter's protection of personal and social investments and Etzioni's calculative commitment.

Yet, psychologically-oriented scale research differs in its assumptions about individuals and socially-organized endeavors. First, it assumes that organizations and occupations offer the same three dimensions in about equal amounts: meaningful and coherent goals with which persons can identify, involvement opportunities and encouragements for individuals to remain. Second, it assumes that commitment dimensions can be measured by variation in individuals in the organization or occupation.

Both sociological and psychological traditions share general similarities on the multi-dimensional nature of commitment and the kind of dimensions that may underlie commitment to a social endeavor. But they differ in their assumptions about the respective roles of the individual and the social endeavor in organizing commitment.

Commitment and organizational and occupational contexts . Notwithstanding theoretical propositions and assumptions, what we know about commitment is implicitly contextual. The two most commonly-recognized contexts are organizational and occupational. Most research on

commitment is done in specific organizations or occupations or a limited range of organizations or occupations. There is no large-scale primary research on commitment across different occupations and organizations.

Occupational and organizational commitment may be complex. Yet, with the exception of one study of the priesthood and a few studies of rangers, there is no research on occupational-organizational context complexity. Studies of single-organization occupations, like the Catholic priesthood and the U.S. forest rangers report a strong and generally positive relationship between organizational and occupational commitments (Snizek and Little, 1984; Snizek and White, 1981; Shoemaker, et. al., 1977, Hall and Schneider, 1972). However, because of the use of single commitment scales, it is unknown what dimensions of commitment to the organization or the occupation produce this correlation. School teaching is a also single organization career. Thus we might expect that measures of teachers commitment to the occupation and the school would be positively correlated. On the other hand, schools and teaching as an occupation may present rather different contexts than those faced by rangers or priests.

Common themes in commitment literature

Despite diverse and overlapping perspectives on commitment, some common themes suggest themselves. First, commitment studies implicitly or explicitly acknowledge the likely multi-dimensionality of commitment. Whether such dimensions reside in the individual or in socially-organized endeavors is disputed. While sociological and psychological share a general agreement on the dimensions that link individuals and endeavors, they do not necessarily agree on the number of dimensions and their specific nature. Despite talk of multi-dimensionality, quantitative empirical studies of commitment treat commitment as a uni-dimensional construct.

Second, commitment involves contextual complexity resulting from the variety implicit in the relationship between individuals and social endeavors. Commitment resides neither completely in the social endeavor or the individual. Rather, it implies matches between individuals and endeavors. Such matches may be complex. One source of complexity may be differences

between occupations and organizations. Occupations may stimulate different kinds of matches than organizations. Different kinds of occupations and organizations may also stimulate different kinds of matches.

Also, the matches between individuals and socially-organized endeavors may reflect one or several dimensions of commitment. Given the likely contextual nature of commitment, some dimensions of commitment may be more important in occupational contexts than in organizational ones; and some dimensions may be matter more in some kinds of occupations or organizations than in others.

Finally, contexts may be more specific than occupational or organizational (or both). It may mean differential commitment to *aspects* of an organization or occupation. In the case of teaching, involvement in the school may mean willingness to direct extracurriculars but not to supervise bathrooms or lunchrooms. Therefore, in order to understand teaching commitment better, it may be necessary to understand with what aspects of their work teachers may involve themselves. Extant literature on commitment suggests that organizational and occupational contexts may matter in the defining of commitment. Other more immediate contexts as yet unstudied may also matter to what teachers may commit themselves, to what extent and in what manner.

Across the commitment literature, different schools of thought tend to agree on the multi-dimensionality and the contextual complexity of commitment. These general principles will guide the following hypotheses on the nature of teaching commitment and its likely underlying dimensions.

Data used to explore the dimensions of teaching commitment

In order to explore the possible multi-dimensionality of teaching commitment I use principal components factor analysis with variables from the teacher and principal surveys in the Administrator and Teacher Survey (ATS) data . ATS data comes from a sub-sample of a larger

stratified sample of schools in the High School and Beyond (HSB) project. In 1984, the ATS surveyed 10,370 teachers in 482 schools, and 402 principals. Up to 30 teachers were surveyed in each school. Schools with less than 30 teachers surveyed all teachers.

There are trade-offs in using the ATS to explore the possible dimensions of commitment. The ATS presents a clear advantage since it is a recent sample of high school educators. However, since its designers were not interested in teaching commitment, many of the variables used in other surveys to measure commitment do not appear in the ATS. For example, there are no measures of willingness to remain in the school or the occupation.

The present study will develop teaching commitment variables that both reflect the complexity in commitment theory and findings and use the ATS to best advantage. Previous research indicates that commitment to an organizationally-bounded occupation is a complex phenomenon, involving dimensions of extra involvement or personal investment in, high identification with and heightened desire to maintain membership in the occupation, the organization or both. Using the ATS data, one can measure teaching commitment in two of these dimensions: extra involvement in either subject preparation or student activities or both; and strong identification with school staff educational goals, with academic excellence, with student personal growth and development or all three. Despite the fact that it does not and cannot replicate any one group of previous commitment studies, the present analysis will define separate components or dimensions that may have some advantages over previous commitment measures.

Seeking underlying empirical components of teaching commitment

This paper posits five a priori dimensions of teaching commitment based on the concepts of involvement in teaching and identification with teaching goals. If teaching commitment is similar to other kinds of commitment, both behaviors that indicate a strong involvement in teaching and attitudes that reflect a strong sense of goal identification may reflect its dimensions. Since high school teaching requires work in schools (as organizations) but involves pre-service and in-service occupational training, teaching commitment may reflect commitment to either the

school or the occupation or both. Behavioral indicators of commitment may measure something analogous to what sociological research calls investments or commitment scale research calls involvement. Two behavioral components probably reflect teaching commitment: teacher non-mandatory involvement in subject preparation and in student activities. Such involvement may indicate commitment to the school or teaching as an occupation or both. At least three components may indicate identification with teaching: identification with the school staff's goals, with academic excellence, and with student personal growth and development. The first of these identification components probably reflects mainly identification with the school as an organization while the second two may mirror commitment to either the school or to teaching as an occupation or both.[1]

Hypothetical components of teacher involvement: teachers' extra time spent on non-mandatory activities

Occupational or organizational commitment usually requires a demonstration, a voluntary contribution of extra effort to, or higher involvement in, tasks related to one's occupation or organization. Many school teachers voluntarily contribute personal time and resources to their classroom teaching. They may also contribute personal time to teaching because it is expected or required by the school or school district. The latter contributions may not reflect commitment to teaching, while the former probably do. Voluntary devotion of personal time to teaching reflects high involvement, a behavioral indicator of commitment.

Some outside class activities in which teachers engage can be considered mandatory. Besides classroom teaching, most schools require that teachers produce, submit and be ready to defend records of lessons, units and grades; file several reports on students' progress each semester; provide make-up work for absent students; and discuss educational problems with parents and other staff members. Schools usually require that teachers who direct cooperative student programs contact employers regarding student attendance and progress. Examples of such activities listed in the ATS are: monitoring areas of the building, completing forms and reports, conducting make-up work for students, and contacting student employers (a typical requirement

for those who ran industrial arts and business education cooperative job placements). Because contracts or school administrators typically require such duties, I consider these activities mandatory.

Administrators or contracts may treat other activities, like counseling and tutoring students, as either mandatory or non-mandatory. Schools may require that teachers counsel or tutor students during the school week. However, in most high schools, especially public high schools, specialized personnel counsel students as part of their normal contractual duties. Because the ATS does not distinguish between job-required and non-mandatory tutoring or student counseling, I will not use either to measure teacher involvement.

The time outside the classroom teachers devote to subject preparation and student activities probably represent two different kinds of non-mandatory involvement associated with teaching commitment. Subject preparation includes class lesson preparation and background reading. Even experienced secondary school teachers may involve themselves in refreshing and extending their knowledge of either teaching or their subject area(s). In addition, involved teachers are more likely to spend extra time modifying their lessons to reflect newly acquired knowledge and to reflect the needs of particular classes or individual students. Teachers who devote time outside class to student activities may experience a different kind of attachment to teaching. They may feel involved in the task of helping students to develop the physical and social skills, and norms, and values important in American society.

Time spent outside the classroom on subject preparation can be treated as non-mandatory activities for at least two reasons. First, school contracts or administrators cannot effectively require that teachers spend specific amounts of time on preparation or student activities (coaching, non-coaching extracurriculars, and student activities not sponsored by the school). Schools may allot official preparation time to teachers during the school day. Yet, administrative supervision of preparation time is difficult and rare. Teachers with such time available may use it to talk with other staff members, prepare required reports, talk to students or simply relax. While most administrators expect teachers to prepare for their classes, neither teaching contracts nor

administrators effectively mandate either the amount or quality of time teachers devote to preparation.

Similarly, most teaching contracts and administrators do not effectively mandate teacher participation in or direction of student activities.[2] The ATS lists three such student-centered activities: coaching sports, other school extracurriculars, and activities not sponsored by the school (i.e., religious activities). Schools rarely assign teachers to school-based student activities, nor can most be forced or required to do them with enthusiasm. Also, most teachers can switch from one student activity to another or quit participating in student activities altogether. The school cannot require that teachers participate in any non-school activities, like religious or community groups, with students. So, I classify outside class time spent on student activities as non-mandatory involvement in an aspect of teaching.[3]

In the present inquiry, non-mandatory teaching involvement is a scale coded to reflect approximate hours teachers devote to classroom preparation (lesson planning and background reading) and student activities (coaching sports, other school extracurriculars, and other outside-school activity with students). Table 1.1 shows the coding of variables that measure outside of class time. On individual items, teachers could report anywhere from no hours (coded as zero), to 21 or more hours (coded as 22). The variables are coded to the mid-points where a range is given.

Table 1.1-Time spent on outside class activities in an average week

Actual hours	Coding
Zero	0
One	1
Two	2
Three	3
Four	4
5-6	5
7-8	7
9-10	9
11-20	15
21 +	22

Total voluntary time is a sum of the separate types of voluntary time. Descriptive statistics for variables reflecting time spent on non-mandatory activities are listed below in Table 1.2. Of all the weekly outside class non-mandatory activities listed above, the classroom preparation activities consume more time than student activities; lesson preparation consumes more of the academic time than does background reading. Of the student activities, coaching consumes more time than either other extracurriculars or activities with students outside of the school context. On average, when teachers voluntarily involve themselves more in teaching, they tend to spend more time first on classroom preparation (lessons and background reading), and second on coaching.

Teachers' estimates of total non-mandatory time seem inflated. Adding the total of voluntary time to an average classroom work week of 30 hours (five work days times six classroom hours per day) totals 48 hours. This average does not include time spent on mandatory or miscellaneous activities (another approximately 15 hours). If these estimates are fairly accurate (making an average 12.6 hour teaching day, assuming a five-day week), teachers' involvement in teaching (mandatory and non-mandatory) may not need any enhancement but rather a reduction. I attribute most of this probable inflation to peculiarities in the survey. First, the ATS asks teachers to report whole hours spent on each activity each week (parts of hours are rounded up). Secondly, the ATS does not allow for teachers spending the same hour on more than one activity. Third, the

ATS does not ask teachers to total these hours. Such a totaling might have alerted teachers to revise possibly inflated separate estimates.

Table 1.2-Variables representing teachers' non-mandatory time

Variable	Mean	S. D.	Min.	Max.	Cases
Weekly hours: test & lesson preparation (SP)	8.298	5.331	0	22	10235
Weekly hours: background reading (SP)	3.250	3.142	0	22	10212
Weekly hours: coaching (SA)	2.251	5.495	0	22	10011
Weekly hours: other extracurriculars (SA)	1.858	3.978	0	22	10069
Weekly hours: non-school student activities (SA)	1.090	2.723	0	22	10102

(SP) - reflects involvement in subject preparation
(SA) - reflects involvement in student activities

It is likely that teacher involvement in classroom preparation reflects a qualitatively different commitment than involvement in student activities. Student activities and classroom preparation involvement probably arise from rather different teacher interests (subjects as opposed to students). For this reason, I expect that components analysis[4] will find these separate activities loading on two components: student activities involvement and classroom preparation involvement.

In summary, the non-mandatory involvement in outside-classroom activities probably reflects teachers' investments of personal time in their teaching work or their willingness to devote extra effort on behalf of the school or their occupation. These two hypothetical involvement components may mirror teachers' interests in academic and non-academic aspects of their work with students.

Hypothetical components underlying identification with teaching: school goals , academic excellence and student personal growth

One aspect of commitment might be a strong identification with the goals of an organization or occupation. Identification implies an internalization of one or more beliefs, values or perspectives of individuals or groups outside a person. Teachers' may internalize the educational goals of their peers in a school (goals of the organization), or they may internalize particular educational goals associated with teaching (goals of the occupation). Two such widely accepted and possibly contradictory educational goals are academic excellence and student personal growth. Teachers' identifications with either or both common educational goals may overlap where such identification coincides with the school staff's identification with the same goals.

Teacher identification with the goals of the school as teacher-staff goal congruity

The ATS includes variables that allow one to measure teachers' identification with the goals of the organization, one of three dimensions of organizational commitment. Such identification means strong agreement with or internalization of the goals of the organization (Steers, 1977). Both Hall and Lawler (1970) and Mowday , et. al., (1979) argue that individual-organization goal congruity can measure an individual's identification with the goals of the organization. Organizational commitment surveys typically determine congruity from employee responses to a question that asks how much employees share the goals of the organization on a Likert scale. Such a question presumes that the organization has goals, that the goals are consistent, and that the employee knows what they are.

However, teacher congruity with the goals of a school and its measurement may be more complex than other kinds of individual-organizational goal congruity. First, unlike many private firms, schools may promote a variety of inherently inconsistent goals (Metz, 1978; Kirst, 1984). For example, secondary schools generally claim to value high standards of academic excellence, while also claiming to encourage each student's unique personal growth and development. Second, schools may not have any clear goals, or at least the goals may not be clear to teachers.

Whatever the state of the goals themselves, teachers may not know what they are or how they can implement them. Fourth, teachers and schools may try to balance current perceived national goals for education against the goals demanded by local communities (Metz, 1988). Finally, teachers, as a group, may not share the same goals as their school principals.

In such an environment, teachers may not know with which of the school's goals they should be most concerned. Or teachers may embrace several of the school's legitimate educational goals, but not embrace each goal to the same degree. That is, they may disagree on the *relative importance of these goals in their teaching*. Thus, to measure congruity, it may be necessary to assess agreement across a broad range of educational goals, and across teachers and principals.[5]

Operationalizing teacher-staff goal congruity

The eight ATS educational goals in both the teacher and principal surveys are listed in Table 1.3. The ATS survey asks teachers and principals to rank (forced-rank, 1-8) these eight educational goals by their importance (as recoded, 8 is "most important," and 1 is "least important").

Table 1.3-Teaching goals surveyed in the ATS

basic literacy skills
academic excellence
citizenship
specific occupational skills
good work habits and self discipline
personal growth and fulfillment
human relations skills
moral and religious values

Because the goals of the school may be diverse and teachers and administrators may rank different goals differently, I measure teacher-staff goal congruity as similar goal rankings between individual teachers and both other teachers and principals on all eight educational goals listed in the ATS (see below). In order to find congruity, first I created a teacher-staff goal incongruity scores

for each individual; next I reversed the direction of the scores by subtracting the highest value from each individual's scores. That became the raw congruity score. In order to place that congruity in the context of overall agreement in the school, I divided the raw congruity scores of individuals by the standard deviation in the school. I report the raw (uncorrected) and corrected congruity scores in Table 1.4. See Appendix A for a more complete description of the calculations used to produce congruity scores.

Average school-level goal standard deviations may decrease or increase the raw teacher-staff goal congruities. In a school where fewer teachers agree on the rankings of educational goals, the standard deviation of the overall staff value congruity will be larger. In such a school, individual teacher-staff corrected congruity will be lower than the uncorrected version. Conversely, where teachers in a school agree more on goals, their standard deviation will be lower and their corrected congruity will be higher than otherwise.

The means and standard deviations of corrected individual teacher congruity on each and all goals combined are listed in Table 1.4. Generally, Table 1.4 shows that correcting separate teacher-staff goal congruities by school level deviations lowers congruity on five of nine goals. On goals like academic excellence and moral and religious values, lower school-level goal consensus lowers the corrected individual-staff goal congruity. Yet higher school-level consensus on the work habits and human relations raises the overall congruity on these values.

Table 1.4-Variables reflecting teacher-staff goal congruity before and after correction for average school level goal congruity

Variable	Cor-rected mean	S.D.	Min.	Max.	N	Raw mean
Congruity: Basic Skills	4.89	2.026	0.34	31.86	9079	5.328
Congruity: Academic Excellence	4.34	1.431	0.61	19.09	9069	4.969
Congruity: Citizenship	5.44	1.575	0.74	19.09	9023	5.275
Congruity: Occupational Skills	4.72	2.182	0.21	25.61	8913	5.221
Congruity: Work Habits	6.42	1.900	0 .67	17.68	8969	5.438
Congruity: Personal Growth	5.26	1.422	1.03	19.09	9052	5.225
Congruity: Human Relations	5.39	1.612	1.18	34.64	9038	5.263
Congruity: Moral/religious values	4.01	1.564	0.24	19.09	9057	5.118
Total Congruity	11.02	2.817	2.87	37.08	8571	5.230

Total congruity increases dramatically when teachers differ little on their rankings of goals (i.e., by a small standard deviation). Also, there is much greater overall teacher-staff goal congruity than there is on any particular goal. This phenomenon is largely due to the averaging process described in Appendix A.

ATS measures of the educational goal rankings can help construct a teacher-staff goal congruity measure. If teacher-staff goal congruity actually measures school goal identification as a distinct type of identification, it will load separately as a single component in a components analysis that includes all identification and involvement variables.

Teachers' identification with academic excellence and students' personal growth

High school teachers probably identify strongly with either or both of two distinct goals associated with secondary school teaching: academic excellence or student personal growth. Since

teachers' occupational socialization and socialization into high schools typically promote one or both of these goals, identification may be with the school or the occupation or both. A strong identification with either goal probably involves more than just an expressed preference, evidenced by a high ranking of either goal. Internalization of a goal implies a clustering of related attitudes or related attitudes and behaviors. A high ranking of academic excellence as a goal and a strong preference for absolute standards in student grades may together represent a strong identification with academic excellence. A high ranking of student personal growth and development, and a tendency to deal with student personal problems may together reflect a strong identification with student personal growth.[6]

ATS variables reflecting teachers' hypothetical strong identification with academic excellence include those listed in Table 1.5.

Table 1.5-Variables reflecting teachers' identification with academic excellence

Variable	Mean	S. D.	Min.	Max.	Cases	Coding
Teachers ranking: academic excellence goal	5.299	2.179	1	8	10162	8=very important 1=not important
Teachers use absolute achievement as grading criterion	3.008	0.831	1	4	9829	4=very important 1=not important

Hypothetically, teachers who identify more strongly with student personal growth are more likely to rank that goal more highly than other teachers. Also, teachers who identify with students as persons will probably report dealing with student personal concerns more than other teachers. Variables reflecting the hypothetical component of identification with student personal growth are listed in Table 1.6.[7]

Table 1.6-Variables reflecting teacher identification with student personal growth

Variable	Mean	S. D.	Min.	Max.	Cases	Coding
Teachers ranking: student personal growth goal	5.112	1.886	1	8	10151	8=very important 1=not important
Teachers deal with student personal problems	4.188	1.377	1	6	10270	6=strongly agree 1=strongly disagree

Teachers' identification with educational goals may itself be multi-dimensional. At any point in time, individual teachers may value the goals of the high school's staff, the goal of academic excellence, and the goal of student personal growth. I have argued above that these three goals are distinct, and that the variables I associate with each one will cluster together into the hypothesized components I described above. On the basis of that argument, I expect that a principal components analysis using all ten commitment variables will produce the three hypothesized components (identification with the school, identification with academic excellence and identification with student personal growth). Other combinations are possible, each possibly casting doubt on the hypothesis about what constitutes strong identification with one or both educational goals. For example, if individual teachers' goal identification variables load on involvement components, then perhaps involvement and identification are not really distinct dimensions. In such a case, teaching commitment might be better described as simultaneous identification with goals that entail some measure of involvement. That is, though commitment includes elements of all the separate variables, the contribution of each variable varies by component. Therefore, each of the five components reflects a distinct aspect of teaching commitment.

Principal components analysis of commitment variables

In order to explore possible dimensions of teaching commitment, using ATS variables, I have hypothesized five possible underlying dimensions of teaching commitment. I use principal components analysis (PC), a form of factor analysis, to explore those hypothetical dimensions.

There are many techniques of factor analysis. Because the underlying dimensions of teaching commitment are unknown, principal components is preferable to other analytic methods that assume a knowledge of such dimensions (e.g., maximum likelihood algorithms). Like other forms of factor analysis, PC works best when theory or hypothesis suggests the likely dimensions underlying a construct, when the variables chosen share sufficient bivariate correlations, and when the final factor solution reasonably corresponds with the theory posited. PC proceeds through several steps:

1) a specification of variables;
2) an analysis of a correlation matrix to determine the suitability of matrix in a factor context
3) a specification of possible underlying dimensions based on hypotheses or theories
4) a rotation of those dimensions to maximize the expected relationships among the dimensions
5) an interpretation of the rotated solution consistent with original hypotheses or theories.

Variables in the Analysis . Shown below are descriptive statistics on the ten variables included in the components analysis. These ten variables and the reason for their inclusion in the analysis are described separately above. Note that only 7570 cases are available in this analysis due to the listwise selection of cases required by the factor analysis program. Cases missing on any one variable will be missing in the entire analysis.

Table 1.7-Variables included in the analysis of the dependent variable components

Variable	Mean	S. D.	Cases	Description
Lessprep	8.395	5.312	7570	Weekly hours: lesson preparation
Readprep	3.171	3.016	7570	Weekly hours: background reading
Excoach	2.224	5.445	7570	Weekly hours: coaching
Exocurr	1.839	3.974	7570	Weekly hours: non-coaching extra-curricular
Excact	1.043	2.644	7570	Weekly hours: non-school student acts.
Absgrad	3.017	0.827	7570	Grading criterion: absolute stds.
Exclgoal	5.334	2.163	7570	Teaching goal rank: excellence
Growgoal	5.096	0.876	7570	Teaching goal rank: student personal growth
Stdprob	4.188	1.377	7570	Teacher deals with student personal problems
Totlcong	11.048	2.810	7570	Total teacher-staff goal congruity

Adequacy of this set of variables for the analysis . Kim, in the SPSSx chapter on factor analysis (1985) recommends examining both the correlation matrix and running one or two tests to establish that variables share enough to use factor analysis. If variable do not share much variance, factor results may not be particularly meaningful. Bartlett's test of sphericity is one of two tests that assesses the extent to which shared variance is due to chance. Bartlett's test of sphericity (significance set at .001), commonly used to establish adequacy, indicates that the likelihood that the commonality among variables is due to chance is small (.00000). This statistic indicates that the variables share enough in common to proceed with exploring underlying components.

Extraction of components: the five-factor criterion . In this test, I specified the number of components extracted to equal the number of components I expected (five) on the basis of the arguments I listed above. I hypothesized five underlying components: three identification components (identification with the goals of the school, identification with academic excellence, and identification with student personal growth); and two involvement components (involvement with classroom preparation and involvement with student activities).

The final statistics in Table 1.8 summarize the statistical information that allows an assessment of whether a sufficient number of components was extracted. The first two columns list the variables and the amount of variance they share with all other variables, called the communality. The second column reports final shared variance after several iterations in the extraction process; the communalities are the best possible in light of the extraction criteria. The extraction process is iterative, meaning that the extraction process revises the weights or component loadings until the extraction criteria are met. If a components analysis is completely exploratory, low communalities of some variables may induce a researcher to repeat the analysis without these variables. However, in the present circumstance the theoretical reasons to include the variables override the dropping of a variable like EXOCURR. The third through final columns list the proportion of variance that each component explains. Eigenvalues reflect the proportion of variance, and are the basis for the percentages of variance reported in the last two columns. The reader will note that a three factor solution would not account for the majority of variance. However, either a four or five factor solution would account for a majority of the variance.

Table 1.8-Final Statistics

Variable	Communal-ity	Compon-ent	% Var-iance	Cumul-ative %
Lessprep (Time spent: lesson prep.)	0.666	1	15.3	15.3
Readprep (Time spent: background reading)	0.656	2	14.3	29.5
Excoach (Time spent: coaching)	0.494	3	11.7	41.2
Exocurr (Time spent: other extracurriculars)	0.372	4	10.4	51.6
Excact (Time spent : student activities outside school)	0.568	5	9.3	60.9
Absgrad (Teacher uses absolute grading standards)	0.622			
Exclgoal (Importance: goal of academic excellence)	0.529			
Grwgoal (Importance: goal of student personal growth)	0.445			
Stdprob (Teacher addresses student problems)	0.793			
Totlcong (Teacher-staff goal congruity)	0.946			

Assuming that it is interpretable, the best solution is the one with the fewest components that accounts for the most variance. To test whether either the four or five factor solution were preferable, I performed three additional extractions not reported but available from the author on request. On the second of the additional extractions, I set the extraction criterion to four components. On the third attempt, I set the criterion to six components. On both the second and third attempts, the results were not interpretable. On the fourth extraction, I set the criterion to components whose eigenvalues equalled or exceeded one. This is a standard criterion used to

select the fewest components with the most explanatory value (called mineigen). The mineigen solution was the same as the five factor extraction. The five factor and mineigen extractions both explain about sixty-one percent of the variance among the variables. Since the hypothesized components criterion produces the same results as the mineigen criterion, and since the four and six factor solutions are not interpretable (see discussion of pattern matrix that follows), the five factor solution seems the best. If a smaller factor solution were interpretable and explained a majority of the variance in the set of variables, it would be preferable. Such is not the case.

To assess whether the variables indicating teaching commitment are parts of a single dimension, I attempted to form the ten variables into a single scale. After doing so, the alpha reliability of the entire scale was about thirty percent. This low reliability seems consistent with my contention that the indicators of commitment chosen in this study are not part of a single dimension.

By using alternate criteria in PC and by checking the scaling reliability of all the commitment related variables, I can feel more confident that the indicators I have chosen combine to form or reflect multi-dimensional constructs. Testing by alternate criteria does not confirm my hypotheses, but fails to reject them.

Interpretation of the rotated solution

The final rotated components solution can be judged in terms of theory, logic, or the extent to which the solution does not distort relationships in the original data (evidenced in the bivariate correlation matrix). Residuals between the original and reproduced matrix (bivariate Pearson correlations - correlations among the new weighted variables) are higher than expected. Fifty-three percent of the residuals are greater than 0.05. This statistic indicates that the five factor model does not match the original data as well as I would like. Had there been more indicators in the data set for each expected dimension of teaching commitment, there would have been a better match between the original and reproduced relationships among variables.

The pattern matrix reports the regression weighted loadings of variables on the extracted components. The loadings in the pattern matrix (Table 1.9) are sorted by component. The largest loadings for component one appear in column one, row one. The largest loadings for components two are found in row two, column two; and so on. The loadings of the variables in Table 1.9 seem to match the five components I hypothesized:

1) the student activities variables load most heavily on the first component that I might call "involvement in student activities;"

2) the classroom preparation variables load most heavily on the second component that I might call "involvement in classroom preparation;"

3) teacher rankings of academic excellence and their tendency to use absolute standards in grading load most heavily on the third component that I might call "identification with excellence as an educational goal;"

4) teacher-staff educational goal congruity loads by itself as a separate fourth component that I might call "identification with the goals of the school."

5) teacher rankings of student personal growth and development and their tendency to deal with student problems load most heavily on the fifth component that I might call "identification with students as an educational goal;"

Table 1.9-Components Pattern Matrix

	Components				
	1	2	3	4	5
Variables					
Time Spent : non-school activities	.74484	.06404	-.04879	.03547	-.03531
Time Spent : coaching	.68920	-.19634	.04734	.02648	.01813
Time Spent : extracurrs.	.57344	.15263	-.00255	-.03733	.04936
Time Spent : reading	.12071	.78753	-.07486	-.11024	-.08116
Time Spent : lesson prep.	-.08814	.78332	.16344	.10124	.03800
Grading criterion: abs. stds.	-.03152	.06559	.78647	-.04210	.19272
Ed. goal: excellence	.01646	.03293	.68141	.13269	-.13175
Teacher-staff goal congruity	.03324	-.02333	.04238	.97289	-.02826
Teacher deals w/ student personal problems	.05570	-.08652	.11297	-.06800	.89806
Ed. goal: student growth	-.02740	.12666	-.38907	.15654	.44330

Key to components
1-Involvement in student activities
2-Involvement in subject preparation
3-Identification with excellence in education
4-Identification with the school's goals
5-Identification with students as persons

The weights in Table 1.9 are consistent with the hypothesized components discussed earlier. For example, each of the activities variables load mainly on the activities involvement. However, while these variables carry the heaviest weights, time spent on background reading also loads slightly on the component. Similarly, while background reading and lesson preparation time load heavily on the preparation involvement component, there are small loadings from extra-school activities and a higher ranking of student personal growth as an educational goal. In short, while these weighted components load as expected, components are not composed entirely of the expected elements. They include smaller parts of other elements.

Advantages of commitment measures used in this study

Despite its inability to replicate other approaches to the measurement of commitment, the ATS allows measures of commitment that may have some advantages over those found in either of the classical commitment research traditions. First, the present study develops both behavioral and attitudinal indicators of possibly underlying dimensions of commitment. The present data allow for measurement of involvement and identification dimensions of teaching commitment: involvement in teaching activities and identification with typical educational goals, and identification with the goals of the school's staff. Since these cut across the conflicting and overlapping definitions of organizational and occupational commitment, and commitment scale and side-bets research, the components of teaching commitment allow a broader analysis of commitment than classical commitment studies. By using both behavioral and attitudinal indicators, the present study also reduces the risk of incorrectly inferring behaviors from attitudes, and attitudes from behaviors.

Second, unlike classical commitment studies and recent research on teaching commitment, this study hypothesizes *and measures* commitment as multi-dimensional. Single scale measurements of commitment do not measure separate dimensions or reflect the true complexity of commitment. More importantly, single scale measurements are not likely to help those wanting to influence commitment to diagnose which aspects of commitment needing the most help.

Third, unlike classical commitment measures, the present analysis allows researchers to define the substance of commitment in an appropriate social context more specific than the occupation or the organization. This study uses indicators of commitment specific to American high school teaching. The goal identification and involvement dimensions that comprise the components of commitment are common in high schools.

Understanding the strength and substance of high school teaching commitments may lead to more sophisticated policy modifications. In order to do something to encourage commitment, it is better to know to what extent employees are committed to the key elements of their work, their work place or their profession. The ATS allows a measurement of high involvement in student

activities and subject preparation. These activities are common in secondary schools. Information distinguishing between teacher involvement in extracurriculars and academics may allow schools to find ways to influence the latter where involvement in the former is judged adequate. Identification with common secondary school educational goals constitutes another kind of substance. The ATS provides information on teachers' identification with both personal student growth, academic excellence and identification with the goals of school staff. Data that permits distinguishing between identification with different goals potentially allows secondary schools to find ways of stimulating higher levels of identification with academics, students, or with other teachers or all three. While it is useful to know the overall level of commitment, it is even more useful to know how much teachers are committed to various aspects of teaching.

Fourth, this study allows for the possibility that dimensions underlying commitment may conflict. In particular, in order to identify with the school's goals, teachers may have to choose to de-emphasize their identification with one or another goals of the occupation; or vice versa. Neither side-bets nor commitment scale studies suggest that identification with organizational or occupational goals may conflict. Also, neither tradition suggests that identification with either occupational or organizational goals may be at odds with employee behaviors.

Summary and implications for teacher policies

Like other socio-psychological states, teaching commitment is probably multi-dimensional and contextually complex. While previous commitment research contains divergent findings, many studies argue that commitment can be defined in terms of strong goal identification, strong involvement, and strong willingness to remain. Teaching commitment probably includes all three of these dimensions. Data used in this study allow a measurement of teachers' willingness to involve themselves in the school or the occupation or both; and a strong identification with educational goals common to the occupation and the school. The analysis of the indicators of identification and involvement suggests that the three "generic" dimensions may have sub-dimensions: identification with school goals, identification with two occupational goals (subject

and student based), and two kinds of involvement (with subjects and students). As teachers devote themselves to these dimensions of high school teaching, they will also probably link themselves aspects of the school, the occupation or both. In short, partly due to the contexts of occupation and organization, there appear to be more dimensions of teaching commitment than the generic three dimensions often posited.

The complexity of the high school context adds to the complexity of occupational and organizational contexts. There are several concurrent tasks associated with high school teaching: teaching specialized subjects in specialized departments, forming and maintaining relationships with students, and forming and maintaining relationships with departmental members and other staff. Identification with teaching goals may have occupational (deciding on one's own rankings of educational goals, deciding on grading standards, deciding on classroom activities) and organizational components (sharing agreement with one's department or staff on educational goals). Involvement in preparation and student activities may also concurrently reflect occupational and organizational components. The high school context adds complexity to the already complex situation of performing an occupation in an organizational context.

Multiple dimensions of teaching commitment and the complexity of the high school context together suggest approaching policies to teaching commitment on a lower level than the federal or state levels. First, high school contexts may differ from elementary or middle level contexts. There is little research comparing teaching commitment in high school contexts to other contexts. These contexts may structure commitment differently. Second, high schools may present different social contexts in which teachers develop commitments. Given the complicated relationships between individuals and organizations, each high school may experience a qualitatively different matrix of occupational and organizational factors, and the dimensions of identification, involvement and willingness to remain. Its probable multi-dimensionality and intricate contexts suggest the importance of more sensitive detection of commitment at the local level.

Though many would like to solve the teaching "commitment problem," few seem to understand teaching commitment itself. Present educational research seems inclined to rush to promote broad solutions to a little understood phenomenon. A better approach might include beginning with seeking a greater understanding of the dimensions of and context complexity of high school teaching. Such an understanding may contribute to better diagnosis of possible commitment problems in their social context.

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1 Drawing on a different set of sources, Louis & Smith (1989) define engagement in a manner consistent with my work. They distinguish between engagement with the school as a social unit, with the academic goals of the school, with students as individuals, and with the subject they teach.

2 A possible exception to this is in the hiring of new teachers. First year teachers may be hired with the explicit understanding that they direct one or more extracurricular activities. This is particularly the case in rural schools.

3 Some might argue that teachers direct extracurriculars because schools pay them to do so, not because they are more committed to teaching. First, pay alone rarely compensates teachers for the many hours they often devote to such activities. Second, organizations outside schools that sponsor student activities may not reimburse teachers at all. Lastly, saying that teachers may be paid for an activity (the ATS does not ask teachers if they are paid or not) does not establish that an activity is mandatory or non-mandatory.

4 Principal components analysis works to produce a smaller number of weighted linear combinations among a set of variables that account for the maximum amount of variance among a set of variables. It is the most commonly used form of factor analysis. Typically, researchers use principal components: to find a smaller number of as yet unknown dimensions hypothetically underlying a group of variables; or to reduce a larger number of variables to a smaller number of linear combinations that can be used in other analyses, like regression analysis. Loading refers to the clustering of variables into groups based on weights that determine the clustering.

5 It would be useful to know to what extent the community shared the same goals or goal priorities as the school's teachers, administrators or both. Unfortunately, none of the HS & B data sets, including the ATS, collected this kind of information.

6 High rankings of common educational values may reflect teachers' identification with particular teaching endeavors. Teachers rank both goals highly, and the variance in their average rankings is also high. For example, on an eight-point scale, rankings between 3 (relatively unimportant) and 7.5 (very important) lie within one standard deviation of the mean. Teachers evidence the same pattern on the personal growth goal.

On average, teachers report that they are more inclined than not to deal with student personal problems. However, the variance around the mean is high. One standard deviation around the mean runs between 1.4 and 4 on a 6-point scale. Also, on average, teachers report that all three grading criteria are relatively important, though effort is reported as a slightly more important criterion of student work. An examination of frequency distributions (not shown) reveal that most teachers do not avoid student problems and most report that all three kinds of grading are "important" or "very important."

Not shown here is the ranking of other educational goals, many of which are ranked as highly or slightly higher than these goals. These educational goals are selected because they correspond with teacher identification with similar values as teachers in previous studies. In ATS, teachers' average rankings of basic skills, academic excellence, work habits and personal growth are ranked relatively high while specific occupational skills, citizenship and moral/religious values are ranked relatively low.

7 Initially, I believed that identification with student personal growth also included a strong preference for grading based on improvement and effort. Adding the effort and improvement grading criteria variables to other variables in the components analysis produced a loading of all three grading criteria variables mainly on one bipolar component. Mixed sign components are not interpretable. I regarded this bipolar component as evidence that the improvement and effort variables were just opposites of grading by absolute standards; therefore, they were redundant. Furthermore, grading on improvement and effort could be consistent with an identification with either academic excellence or student personal growth. For example, teachers might have absolute standards for improvement or effort; or teachers might incorporate effort or improvement into absolute standards. For these reasons, I dropped the preference for improvement and effort grading criteria from consideration.

Appendix A

My congruity variable is based on the assumption that congruity is adequately measured by individual teacher deviations from the rest of the educators in the school. Thus, teachers farthest away from the school average will evidence less congruity than those closest to the school average. Dividing this congruity by the standard deviation of congruity in the school gives teachers with little in common with other teachers in schools with little congruity a low congruity value; it also gives teachers with similar rankings in highly congruous schools even higher rankings than without the correction. However, correcting for the deviation in school congruity also gives teachers who share few rankings with other teachers *in a congruent school* a higher congruity value than teachers who share many common rankings in a *school where there is little agreement* in toto. This raises a question. Who is most alienated from their peers? One could argue that teachers who shared few goals in common in a school where most teachers disagreed would be most like their peers (they all disagree). Likewise, one could say that a teacher who shared few goal rankings in common with teachers in a school where almost everyone agreed would stand out more, and feel more alienated. To model this situation, one could divide teachers' deviation from school goals by the reciprocal of the standard deviation of congruity (a measure of overall school congruity, not incongruity). This would give low congruity teachers in a low congruity school a higher overall congruity ranking than low congruity teachers in a highly congruent school. However, it would also have the unfortunate side-effect of giving teachers in all of the least congruent schools higher congruity values than those in all of the most congruent schools. There seems to be no one perfect measure of congruity. Each of the two methods described in this note describe a different facet of goal congruity better than the other, each may be valid, and each method produces some problem. I say this to demonstrate that my method of measuring congruity is one of a possibly larger number of ways; and measuring it in my way has benefits as well as costs.

Calculations to produce raw incongruities

Incongruity is operationalized as the absolute distance between an individual teacher's ranking of a teaching goal and the mean ranking of the staff. It was produced through:

1) the subtraction of teacher goal rankings from the average teacher goal rankings for each goal, T07a-h (e.g., T07a - School aggregated average teacher T07a);

2) the subtraction of individual teacher rankings from the principal's rankings for each goal, T07a-h (e.g., T07a - P06a);

3) the simple averaging of the above differences for each goal, calculated by the summation of the absolute value of each of the deviations divided by two (#1 + #2)/2);

4) the total difference across all goals (T07a-h), calculated by the summation of the total deviation for each goal from step 3, divided by eight (there are eight goals).

Calculations to produce raw congruities

The above four steps produce an incongruity measure across all eight goals. In order to produce a raw *congruity* measure it became necessary to reverse the incongruity scale by computing the absolute value of the incongruity minus the highest possible value of any one deviation, i.e., seven.

Calculations to produce final congruity scores

This raw congruity score for each individual teacher does not take into account the average level of staff goal disagreements within the school. The meaning of individual-staff goal congruity in a school where there was on average little agreement on the ranking of goals might mean something entirely different than in a school where most teachers agreed on the ranking of most goals. To correct for this, I used the following procedure:

1) I computed a school-level standard deviation of the congruity for each goal, followed by a summation of all separate standard deviations; I divided that sum by eight (there are eight goals) to produce an overall standard deviation across all goals.

2) I then divided each teacher's raw congruity score (from step one) by the school-level deviation. The result is a corrected congruity score.